

Remarks

This is a response to the Office Action mailed on September 12, 2003.

The specification is amended to refer to further details of the cited co-pending applications, and to correct typographical errors.

The following claims are cancelled: 3, 6, 10, 15, 17, 19, 20, 23-25, 28-31, 33, 35, 42-52 and 57.

The following claims are new: 62-79.

The following claims are amended: 1, 2, 4, 5, 7-9, 11-14, 16, 18, 21, 22, 26, 27, 28, 32, 34, 36-41, 53-56 and 58-61.

Support for the amended and new claims is as follows.

Claim 1 - see Fig. 2 for the plurality of energy sources; Fig. 10 and page 15, lines 10-12 and 16-19 for sequential emission; page 4, lines 16 and 17 for detecting energy emerging from a specimen or medium; page 6, lines 12-18 for a medium that scatters energy; and page 8, lines 21-23 for a time series.

Claim 2 – Fig. 6 and page 18, lines 18-21 regarding linear arrays and reconstruction of 2-D images.

Claim 4 – see page 24, lines 4-6 for adjusting the gain of a detector based on the position of an energy source.

Claim 5 – see page 21, lines 6 and 7 for the simultaneous readout.

Claim 12 – see comments above regarding claim 5.

Claim 13 – see comments above regarding claim 1, page 13, lines 4, 5 and 19-21 and page 19, lines 11 and 12.

Claim 18 – see page 15, lines 19-21 and page 19, lines 19-21.

Claim 21 – see comments above regarding claim 1.

Claim 34 is based on previous claims 34 and 35, with modification based on Fig. 6.

Claim 53 - see Fig. 6.

New claims 62, 63 and 75 – see comments above regarding claim 4.

New claims 64 and 77 – see page 8, lines 10-13.

New claims 65 and 78 – see page 3, lines 20 and 21.

New claim 66 – see original claim 25.

New claim 67 – see Fig. 6, and page 18, lines 19-22.

New claim 68 – see original claim 10.

New claim 69 – see page 19, lines 11 and 12.

New claim 70 – see page 19, lines 14 and 15.

New claim 71 – see page 19, lines 19-21.

New claim 72 – see page 19, lines 3, 4 and 14.

New claim 73 – see page 19, lines 17-19.

New claim 74 – see page 19, lines 21 and 22.

New claim 76 – see original claim 21.

New claim 79 – see page 18, lines 15-17.

The claims are amended to improve clarity without conceding to the propriety of any of the Examiner's assertions.

Regarding the objection to the drawings, claim 42 has been cancelled.

Regarding the rejection of claims 42-50 under 35 U.S.C. §112, first paragraph, claims 42-50 have been cancelled without conceding to the propriety of the Examiner's assertion. Moreover, see claims 59-64, and the specification, page 19, lines 3-22.

Regarding the quality of Figure 7, note that Applicants are submitting formal drawings herewith. The formal drawings have previously been published in the PCT publication as substitute sheets.

Regarding the rejection of claim 6 under 35 U.S.C. §112, second paragraph, at page 3 of the Office Action, note that claim 6 has been cancelled.

Regarding the rejection of claims 1-3 and 7 under 35 U.S.C. §102(e) as being anticipated by U.S. patent 5,994,690 to Kulkari et al. (page 4 of Office Action), Applicants believe that the claims as amended clearly distinguish over Kulkari et al. and the other cited references. For example, Kulkari et al. are not concerned with measuring signals that emerge from a scattering medium after being scattered by the scattering medium, where the signals

are emitted sequentially from energy sources, and a plurality of detectors are provided for detecting the respective signals that emerge from the scattering medium for use in measuring dynamic properties of the scattering medium in a time series of images using optical tomography. Applicants' approach is advantageous since it results in an improved dynamic range and better depth discrimination. Moreover, the time series of data provides useful information about the dynamic properties of the scattering medium, as discussed in the specification, e.g., page 8, line 21 to page 9, line 5. Withdrawal of the rejection is therefore respectfully requested.

Regarding the rejection of claims 4-6 under 35 U.S.C. §103(a) as being unpatentable over Kulkarni et al. further in view of U.S. patent 5,351,677 to Kami et al. (page 5 of Office Action), and referring to claim 4, Kami et al., taken alone or in combination with Kulkarni et al., provide no disclosure or suggestion of adjusting a gain of a detector based on a position of an energy source. Applicants' approach is advantageous since it allows for the detection of a wide range of signal levels, thereby improving dynamic range (see page 8, lines 1-14). Withdrawal of the rejection is therefore respectfully requested.

Regarding the rejection of claims 8 and 9 under 35 U.S.C. §103(a) as being unpatentable over Kulkarni et al. further in view of U.S. patent 5,625,458 to Alfano et al. (page 6 of Office Action), Applicants respectfully submit that the cited references do not disclose or suggest the claimed features in the context of the invention set forth in independent claim 1, from which claims 8 and 9 depend. Withdrawal of the rejection is therefore respectfully requested.

Regarding the rejection of claims 10-12 under 35 U.S.C. §102(b) as being anticipated by U.S. patent 5,365,066 to Krueger, Jr. et al. (page 7 of Office Action), independent claim 10 has been cancelled. Regarding dependent claims 11 and 12, Applicants respectfully submit that the cited references do not disclose or suggest the claimed features in the context of the invention set forth in independent claim 1, from which claims 11 and 12 depend. Withdrawal of the rejection is therefore respectfully requested.

Regarding the rejection of claims 13-15 under 35 U.S.C. §102(e) as being anticipated by U.S. patent 6,590,651 to Bambot et al. (page 7, bottom, of Office Action), the cited

reference does not disclose or suggest an imaging head as claimed that undergoes uniform expansion and contraction to accommodate different size scattering mediums. Withdrawal of the rejection is therefore respectfully requested.

Regarding the rejection of claims 16-18 and 20 under 35 U.S.C. §103(a) as being unpatentable over Bambot et al. further in view of U.S. patent 4,810,875 to Wyatt (page 9 of Office Action), item 8 discussed by Wyatt is a flared optical fiber bundle with a flat or concave surface (col. 5, lines 52-60). However, this teaching does not disclose or suggest the use of an imaging head comprising a folding sphere or polygon. Applicants note that the Examiner referred to a “holding” sphere in the Office Action, whereas claim 16 refers to a “folding” sphere. The folding feature is another important distinction over the cited references. Withdrawal of the rejection is therefore respectfully requested.

Regarding the rejection of claim 19 under 35 U.S.C. §103(a) as being unpatentable over Bambot et al. (page 10 of Office Action), this claim has been cancelled.

Regarding the rejection of claims 21 and 22 under 35 U.S.C. §103(a) as being unpatentable over Alfano et al. further in view of Krueger, Jr. et al., (page 10 of Office Action), claim 21 is a method claim that corresponds to claim 1. See the discussion above regarding claim 1. Withdrawal of the rejection is therefore respectfully requested.

Regarding the rejection of claims 25-27 under 35 U.S.C. §103(a) as being unpatentable over Alfano et al. further in view of Krueger, Jr. et al., (page 12 of Office Action), independent claim 25 is cancelled. Regarding dependent claims 26 and 27, Applicants respectfully submit that the cited references do not disclose or suggest the claimed features in the context of the invention set forth in independent claim 1, from which claims 26 and 27 depend, directly or indirectly. Withdrawal of the rejection is therefore respectfully requested.

Regarding the rejection of claim 28 under 35 U.S.C. §103(a) as being unpatentable over Alfano et al. further in view of Kulkarni et al. and Kami et al., (page 14 of Office Action), claim 28 has been cancelled. Withdrawal of the rejection is therefore respectfully requested.

Regarding the rejection of claims 29-33 under 35 U.S.C. §103(a) as being unpatentable over Alfano et al. further in view of Krueger, Jr. (page 14, bottom, of Office Action), claims 29-31 and 33 have been cancelled. Regarding claim 32, Applicants respectfully submit that the cited references do not disclose or suggest the claimed features in the context of the invention set forth in independent claim 1, from which claim 32 depends. Withdrawal of the rejection is therefore respectfully requested.

Regarding the rejection of claims 34, 36 and 37 under 35 U.S.C. §102(e) as being anticipated by Bambot et al. (page 15 of Office Action), claim 34 has been amended to incorporate subject matter from claim 35, which was found to be allowable, with further modifications. Claim 34 in its current form is believed to be allowable.

Regarding the rejection of claim 38 under 35 U.S.C. §103(a) as being unpatentable over Bambot et al. (page 16 of Office Action), Applicants respectfully submit that the cited references do not disclose or suggest the claimed features in the context of the invention set forth in independent claim 34, from which claim 38 depends. Withdrawal of the rejection is therefore respectfully requested.

Regarding the rejection of claims 39 and 40 under 35 U.S.C. §102(e) as being anticipated by Bambot et al. (page 17 of Office Action), Applicants respectfully submit that the cited references do not disclose or suggest the claimed features in the context of the invention set forth in independent claim 34, from which claims 39 and 40 depend. Withdrawal of the rejection is therefore respectfully requested.

Regarding the rejection of claim 41 under 35 U.S.C. §103(a) as being unpatentable over Bambot et al. (page 17 of Office Action), Applicants respectfully submit that the cited references do not disclose or suggest the claimed features in the context of the invention set forth in independent claim 34, from which claim 41 depends. Withdrawal of the rejection is therefore respectfully requested.

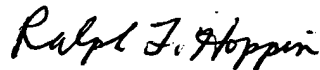
Regarding the rejection of claims 51-58 under 35 U.S.C. §102(b) as being anticipated by Alfano et al. (page 17 of Office Action), independent claim 51, and dependent claims 52 and 57, have been cancelled. Regarding the dependent claims 53-56 and 58, Applicants respectfully submit that the cited references do not disclose or suggest the claimed features in

the context of the invention set forth in the respective independent claims from which the dependent claims depends. Withdrawal of the rejection is therefore respectfully requested.

Regarding the rejection of claims 59-61 under 35 U.S.C. §103(a) as being unpatentable over Alfano et al. (page 19 of Office Action), Applicants respectfully submit that the cited references do not disclose or suggest the claimed features in the context of the invention set forth in independent claim 21, from which claim 59-61 depend. Withdrawal of the rejection is therefore respectfully requested.

In view of the above, each of the claims is believed to be in condition for immediate allowance, and the Examiner is requested to pass this application on to an early issue. If the Examiner believes that a telephone conference with Applicant's attorneys would be advantageous to the disposition of this case, the Examiner is requested to telephone the undersigned.

Respectfully submitted,



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